Nebraska Information Technology Commission
Community Technology Fund 2001

Application Form

Section I: General Information (Required)

A. Project Title: Technology-Based Education for Health Occupation
Name of Submitting Entity: Southeast Community College
Project Contact Information

Name: Susan Noler
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B.Certification for Request

I certify that to the best of my knowledge the information in this application is correct and that the application has been authorized by this entity to meet the obligations set forth in this application.

Authorized Signature: _____

Typed Name: Jack J. Huck

Title: President

Name of Entity: Southeast Community College

Date: February 16, 2001

Total State Funds Requested: $18,195

Contact information regarding this form:

Office of the NITC
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Section II: Executive Summary (Required)

The overall goal of the Technology-based Education for Health Occupations Project is to expand access to vocational education by use of technology. Southeast Community College (SCC) proposes to continue a collaboration with four hospitals in Kearney, Grand Island, Norfolk, and North Platte and three other community colleges, Central, Mid-Plains, and Northeast. The

project will provide two distance health occupations associate degree programs to rural Nebraska by combining technology with campus and hospital classes/clinicals. Both Internet-based courses and two-way interactive television will be employed in the project. The project will serve as a model for the state and nation in the strengthening of rural health infrastructure through the use of technology and through shared responsibility for educational programming.

Within the context of this project, the NITC proposal will request the necessary computer hardware and software for faculty (1) to develop instructional materials for online use and (2) to facilitate communication with distance students. The proposed budget of $18,195 will be used for laptop computers and classroom management software. The portable technology will have the speed and memory necessary for developing courses that take advantage of multimedia presentations. It will assure access and flexibility to faculty working at various sites. The portable technology will also enhance communication between students and teachers throughout the technology-based program. The software will enhance the management of enrollment, grading and competency tracking of the specialized health programs.

Section III: Goals and Objectives (Required)

1. Describe the project, including specific goals and objectives.

Goal: The goal of the Technology-based Education for Health Occupations Project is to expand access to vocational education by use of technology.

Objective: Within the one-year grant period, 15 Radiologic Technology students and 10 Surgical Technology students living in the rural target area will receive technology-based training and on-site clinical education, with a goal of 90% of first year students progressing to their second year and 80% of the graduates finding employment in rural Nebraska.

Activities pertinent to this proposal include:

Activity 1: Faculty will prepare Internet-based modules to replace, improve, or complement satellite-based teaching.

Activity 2: Faculty will facilitate online interaction with distance students through use of laptop computers with Ethernet cards.

2. Describe the project's relationship to the entity's comprehensive technology plan.

This project supports the Distance Learning goal of SCC's comprehensive technology plan as well as the Nebraska Community College System's plan for expanding collaborative instruction through the appropriate use of technology. The community colleges have developed plans to offer a number of Associate Degree Programs and other courses through distance learning, including Agriculture, Criminal Justice, Electronics, Health Information Management Services, Paralegal, Paramedic, Quality Control, and Surgical and Radiology Technology. In 1997, Southeast Community College piloted the Surgical Technology Program, in collaboration with St. Francis Medical Center (Grand Island), Great Plains Regional Medical Center (North Platte), and Good Samaritan Hospital (Kearney). The education partners were Central Community College, Mid-Plains Community College, and Northeast Community College. The local partner

colleges provided a general education core at the students' campus of choice; Southeast Community College provided the health classes via satellite; hospitals hosted clinical rotations. The first distance class graduated in June 2000, providing area hospitals with seven trained Surgical Technologists. Building upon that model, SCC piloted Radiologic Technology in 2000, again collaborating with those partner colleges and hospitals, with plans to add Faith Regional Medical Center in Norfolk in 2001. SCC's comprehensive plan in Distance Learning calls for continuation of these two programs; expansion into other health occupations; and, the focus of this project: preparation for increased use of computer-based instruction in order to improve, augment, or in the case of Radiologic Technology, to replace satellite-based instruction.

3. Describe the project's objectives and how they support the goals of the NITC and/or the priorities of the Community Council.

Goal: The goal of the Technology-based Education for Health Occupations Project is to expand access to vocational education by use of technology.

Objective: Within the one-year grant period, 15 Radiologic Technology students and 10 Surgical Technology students will receive technology-based training and on-site clinical education, with 90% of first year students progressing to their second year and 80% of the graduates finding employment in rural Nebraska.

This project provides an excellent strategy for fulfilling the following NITC goals:
NITC Goal 1-c: *to broaden educational opportunities* … Through use of updated distance technologies--computer-based, fiber optic, and satellite-based instruction--the project will extend existing vocational programs to students living in other community college areas, thereby providing broader access and avoiding unnecessary duplication of programs and services.

NITC Goal 3-b and c: *Encourage the appropriate use of information technology in education, healthcare . . .; Encourage and enable long-term infrastructure innovation and improvement.* The project encourages statewide collaboration among stakeholders for technical innovation in health occupations training.

The project also supports the NITC Community Council Priorities number 1 and 3:
(1) *Ensuring access to public and private services for all citizens* … The project will provide the necessary hardware/software to support the process of extending access to accredited educational programs leading to marketable degrees.
(3) Developing a workforce knowledgeable of and fluent in the use and applications of information technology. The project provides hardware and software that faculty and students will use in the learning process—faculty in the development of computer course work and online communication; students in the use of computer applications and the online environment.

Section IV: Scope and Objectives.

1. Beneficiaries of this project and the need(s) being addressed

A statewide survey conducted by Southeast Community College in March 2000 reflected a need for 77 Surgical Technologists and 97 Radiologic Technologists over the next five years. One of the most critical problems of rural hospitals, expressed poignantly in the survey, is a lack of trained personnel and a lack of training opportunities to fill the growing need.

Approximately 20 rural area students each year will benefit from technology-based access to Health Occupations training, provided by SCC and the partnering hospitals and colleges. In the target area, 160,063 people in four Nebraska counties (Buffalo, Hall, Lincoln and Madison) and 185,628 people in 20 adjacent counties will benefit from increased access to trained health care technologists.

In the context of this larger project, two needs exist. First, curriculum must be revised or developed for computer delivery. Secondly, the need for laptop technology exists because SCC distance faculty are often on the move, coordinating instruction between hospitals and campuses. Laptops allow faculty the flexibility and access necessary to stay in touch with students and the ability to carry on computer-based materials development wherever they are. Having a computer, computer files and Internet access readily available will streamline these processes. Without it, faculty members are not always able to access their files or stay in touch with students.

2. Expected outcomes of the project.

Expected outcomes during the grant period are:

(1) Ten Surgical Technology (ST) and 15 Radiologic Technology (RT) students receive technology-based distance education leading to an Associate of Applied Degree. Ninety percent (90%) of first year students will progress to their second year and 80% of the graduates will find employment in rural Nebraska, providing increased access to trained health care technologist services for people in four Nebraska counties (Buffalo, Hall, Lincoln and Madison) and 20 adjacent counties.

(2) Twelve (12) Radiologic Technology courses will be developed and 13 Surgical Technology classes will be enhanced with computer-based modules.

(3) Approximately 15 RT and 10 ST students will enhance their ability to participate collaboratively in online instruction and communication.

3. Measurements/assessment methods to verify project outcomes.

For the overall project, the evaluation process will use the following indicators to determine how well the project met the goals.

Measure	Target
Number of program students.	Radiological – 15 Surgical - 10
Number/Percent of program continuing or graduating	Radiological – 15 Surgical – 10 (100%)
Hospital/employer surveys (6-12 months after graduation)	High satisfaction 90 – 100%
Registry scores	Both programs: 90 -100%
Placement surveys	100% employment; 80% work in rural hospitals
Student satisfaction surveys	High satisfaction 90-100%
Online Course Development Completed	Radiological – 12 courses Surgical – 13 courses
Online Communication Implemented	By end of project, all students using online

Process evaluation: Throughout the project, the collaborators will communicate regularly to analyze procedural issues and make any adjustments necessary to ensure the success of the project. Records will be maintained on each student, including achievement, attendance, satisfaction, and placement data. Students will complete an evaluation for each course, the results of which will be shared with the instructor to assist in improving course delivery. (This is normal operating procedure for SCC.) Following graduation, students will receive follow-up placement surveys to collect data on their employer, wage, and whether they are working in the area of training. An additional determination will be added for this project, to ascertain whether the student stayed in a rural setting to work. Employers will be surveyed to determine satisfaction with training of the employee. Intervention will be conducted for anyone considering dropping the program with a goal of retaining the individual, if appropriate. Several evaluation tools have already been developed for use with students and employers.
Summative evaluation. The project directors will fulfill the narrative and financial reporting expectations of the grant, providing summary reporting on the schedule required. An advisory committee will assist in evaluation of the project at its meetings, providing feedback for the project directors.

4. Significant constraints of the project.

Constraints for the part of the project represented by this proposal are minimal because of the establishment of the distance infrastructure and the success of the pilot projects. A viable working relationship between partners has already been established. Faculty members have had training and some experience in computer-based curriculum development. Long-term financing of distance education will pose the greatest challenge in the future; however for the proposed grant term, this risk is not applicable.

5. Significant assumptions relating to the project.

The significant assumptions relating to the project are:
(1) There will be a continuing demand for Health Occupations training in the target area;
(2) Hospital and college partners will continue financial and administrative support for the overall project during the grant year and beyond;
(3) Faculty will have the skill and ability to adapt instruction to computer-based environment and to interact with students in this environment;
(4) Students will perceive computer-based instruction positively and choose it;
(5) SCC will continue to retain students to graduation in technology-based distance programs.

Section V: Project Justification (Business Case)

1. Cost/benefit analysis and a life cycle cost analysis. The following analysis includes both grant funds and pertinent in-kind funding.

Equipment	Cost	Revenue Item	Benefit
1. Laptop computers 4 @ $4,075 2. Radiography Pro Software for grading and competency tracking, 1 @ $1,895.	$16,300 1,895	1. Tuition from classes developed: 25 students over 1-year grant period = $3,750 x 25. Over 5 years (maximum life cycle of technology) the benefit would be $468,750. 2. Increased FTE of 25 students per year.	$93,750.00* --Possible additional state aid to the College, depending on other conditions. --Retention of students because of enhanced communications.
Personnel			
1. Project Director	3,315.00		
2.Faculty time for Course Development (870 hours x average of $40/hr.)	34,800.00		
3. Substitutes for regular faculty (870 hrs x $20)	17,400.00		
TOTAL	$73,710.00		$93,750.00*

*__Overall project costs__ include the cost of personnel, travel, equipment, facilities, office supplies and other expenses, the total of which exceeds the tuition benefit considerably. Of course, the benefit to students must also be considered—the ability to gain a higher level of employment and compensation. The benefit of the project to the economy, the people of rural Nebraska, and rural hospitals is also substantial and long-term.

2. Impact the project will have on the customers, clients, citizens. (Services, productivity, quality, performance.)

Services. During the project year and long-term, students in remote locations will have easier access to accredited educational programs through the use of technology.
Productivity. This project will allow faculty members to utilize time more effectively. Rather than relying on the availability and capability of a computer wherever they happen to be, they will be able to use a dedicated computer that travels with them.
Quality. Faculty will be able to provide more timely communication with students through use of Internet e-mail functions. In turn, students will be able to interact more easily with teachers.

3. Impact the new system will have on current problems and how it will impact the entity's policies, procedures, standards, staffing, costs, and funding.

Impact on Current Problems. As stated in the needs section of this proposal, rural areas have difficulty attracting and then retaining qualified health care workers. The SCC pilot projects have provided a remedy by educating rural students closer to their home. As a result, nearly all of the graduates of the pilot Surgical Technology program have stayed in rural areas to work. It is expected that the Radiologic Technology program will produce similar results when the first students graduate. The collaboration between college and hospitals strengthens the likelihood of successfully addressing this long-standing problem.
Impact on Policies and Procedures. The policies governing how community colleges provide education outside their designated areas are under study. In the interim, the Nebraska Commission on Postsecondary Education has granted an exception for distance learning, but has permission-seeking procedures in place.
Impact on staffing, costs and funding. In order to provide release time and substitutes for faculty members to develop courses, SCC will continue to use a variety of internal and external funding sources. This project will ease the burden on faculty members who continue to teach as they develop courses by providing them with updated, mobile technology.

4. Other solutions that were evaluated and why they were rejected. Include strengths and weaknesses. Implications of doing nothing and why this option is not acceptable.

When compared with satellite-based instruction, computer-based is less expensive and more accessible to nontraditional students. However, the start-up investment in terms of faculty time is still significant. No pre-packaged courses exist for Surgical Technology or Radiologic Technology. They must be developed, requiring approximately 40 development hours per course. In addition, when courses are delivered, faculty must maintain a high level of communication with online students in order to provide a quality education.

SCC has worked with computer-based instruction for approximately three years. Currently nearly 1,000 students per year take 37 online courses, and the number is growing each term. As the world becomes more interconnected via the Internet and less reliant upon satellite connections, public education must move swiftly into this medium or risk losing a significant number of potential students in the future.

5. The project's compliance with any state or federal mandates. Specify.

Not applicable.

Section VI: Implementation

1. Project sponsor(s) and stakeholder acceptance analysis.

The overall project has been supported by the sponsor organization and stakeholder organizations for the past two years. The technology project explained in this proposal, the purchase of laptop computers, is a necessary progressive step to update instructional use of online technology and is endorsed by the stakeholders. (See letters of commitment.)

2. Define the roles, responsibilities, and required experience of the project team.

Project Director – Susan Noler, Dean of Health Occupations, Southeast Community College. Noler oversees the development of the distance education component of Health Occupations. She has been an integral part of the overall project since its inception. She relies on assistance from Dr. Neal Henning, Distance Education Director for the College; Larry Shaw, Vice President of Technology; Kathy Uribe, Program Chair for Surgical Technology; Bev Niewohner and Sherri Kohout, Co-Program Chairs for Radiologic Technology; and representatives from each of the hospitals and community colleges. Her responsibility for this project will be to purchase the laptop technology and administer the grant.

3. List the major milestones and deliverables for each milestone.

Milestones:

1. Computers and software purchased.
2. Training on use of laptops completed.
3. Online courses and modules developed.
4. Students trained to use online technology in courses.
5. Faculty communicating via computer with students taking distance courses.

Deliverables:

1. Four (4) computers and one software package purchased and in use for course development and communication.
2. Six (6) instructors trained adequately to produce courses and communicate online.
3. Twelve (12) Radiologic Technology courses developed for online use.
4. Thirteen (13) Surgical Technology courses updated or developed for online use.
5. Twenty-five (25) students enrolled in distance ST and RT courses and using online communications.

4. Training and staff development requirements and procedures.

Faculty will be trained on the use of laptop technology for communicating with students and course development. Training will also be provided for the Radiography Pro grading and competency tracking software to be used by all faculty involved. Some training has already occurred through Distance Education professional development. Ongoing training will be in the form of coaching by the Distance Education staff.

5. Maintenance and ongoing support requirements, plans and provisions.

Computer maintenance and support will be handled by the Southeast Community College tech support team.

Section VII: Technical Impact

1. Describe the hardware, software, and communications requirements for the project. Strengths and weaknesses of the proposed solution.

a. Four (4) IBM ThinkPad A21p laptop computers (850 256 128/32/COMBO 8 x 15" screen). Strengths: Speed (850 MHz), memory (128 MB) 15" UXGA TFT display (1600x1200) robust 32GB, high speed hard disk drive and ATI Rage Mobility 128 video chip, with video capture and playback capability. MGI VideoWave II editing software is driven by the latest Intel Mobile Pentium III processor featuring Intel SpeedStep technology. It is modem/network compatible. Lightweight. No known weakness.
b. Software: Radiography Pro, Radiography School Management Software. Strengths: Specifically for health classroom management; meets multiple needs such as enrollment, competency tracking, and grading. It must be compatible with Windows 95-98 or NT4 or higher. No known weakness.

2. Rationale for determining the selection and appropriateness of the proposed technology components compared to the needs of the users.

The laptops were selected (1) to support loading and manipulating multiple high resolution graphics, requiring adequate memory and speed; (2) to accommodate both softwares proposed below, and (3) to connect via Internet with students from any location. Software for course development will be Lotus Notes Version 4.7, which SCC already has. It was selected because of the ease of adaptability to an instructional format. Lotus Notes was first introduced as a business communication tool, but now SCC and other educational institutions are modifying it to make it a powerful environment for online education. The Radiography Pro software was selected because it fits the requirements of faculty for classroom management of online students. The software will be shared via the College server.

3. Issues pertaining to reliability, security and scalability.

By purchasing to the specifications, all of these issues are met. Computer Information Services at SCC will provide any necessary support on issues of hardware and scalability.

4. Appropriateness of the key technologies with respect to generally accepted industry standards.

The current mode of communication is conducted through either modems or wide area networks. It is our hope that wireless connections will soon be available on a nation-wide basis so that true "anytime, anyplace" learning can happen. As the technology moves to more of a wireless modality, we believe the technology selected is the most appropriate for this emerging technology.

5. Compatibility with existing institutional and/or statewide infrastructure.

Not applicable.

Section VIII: Risk Assessment

1. Describe the risk assessment which has been performed on this project.

Faculty members have had basic training and some experience in computer-based curriculum development, so their abilities to use the technology are sound and will be enhanced by experience. Security of laptop technology is not seen as a risk, since faculty members are dependable and responsible. Completing the curriculum development tasks on time is dependent upon being able to release knowledgeable faculty members adequately from lab assignments. Funds are currently secured for at least partial release time. Communicating with students will involve extra hours for faculty, but this is considered normal for distance education. Overall, long-term financing of distance education will pose the greatest challenge in the future; however for the proposed grant term, this risk is not applicable.

2. List the identified risks, and relative importance of each.

Risk	Relative Importance
a. Faculty release time	High
b. Extra hours beyond regular classroom hours	Moderate
c. Training and ability of faculty to use technology	Low
d. Security of laptop technology	Low
e. Ability of students to use technology	Low

3. Identify strategies which have been developed to minimize risks.

a. Faculty release time	Venture grant funds, distance ed funds are earmarked.
b. Extra hours beyond regular classroom hours	Release time being allowed.
c. Training and ability of faculty to use technology	Training and coaching is happening now.
d. Security of laptop technology	Users will be trained.
e. Ability of students to use technology	Explanations in class materials; help desk.

4. Impact if project is not completed as proposed.

Ultimately, students will be the most impacted if they cannot begin with online courses when anticipated and if their teachers are not available online in a timely fashion. Faculty will be severely hampered in the labor-intensive online course development without laptop technology with sufficient speed and memory because of the need to use multiple graphics in the online environment. Communication with students will be much slower and more cumbersome without portable technology. When away from the home College site, faculty will be forced to "scare up" computers at hospital sites and cooperating college sites, which is both disruptive and unproductive.

SECTION IX: Financial Analysis and Budget (Required)

Provide the following financial information:

	CTF Grant Funding	Cash Match (5)	In-Kind Match (6)	Other Funding Sources (7)	Total
Personnel (1)		17,400.00	34,800.00		52,200.00
Contractual Services					
• Design					
• Programming and Testing					
• Project management, evaluation, and quality assurance			3,315.00		3,315.00
• Other (2)					
Capital expenditures (3)					
• Hardware Acquisition	16,300.00				16,300.00
• Software Acquisition	1,895.00				1,895.00
• Network costs					
• Other					
Other Costs					
Telecommunications					
Supplies and materials					
Other operating (4)					
Travel					
TOTAL	18,195.00	17,400.00	38,115.00		73,710.00

FINANCIAL NARRATIVE:

1. Estimated hours or FTE per position.

A. CASH MATCH – Substitutes for regular instructors – 870 hours x $20 = $17,400.
IN-KIND MATCH –Instructor hours for development of curriculum: 870 hours x average of $30/hour salary and $10/hr. benefits.
The cash and in-kind match is provided by Southeast Community College.
A record of hours will be kept for the grant period.

2. Contractual expenditures

A. Design – none
B. Programming/Testing – none
C. Project Management, evaluation, quality assurance –
INKIND MATCH – Project Director. Based on .05 FTE x Project Director's Current Salary and Benefits.

3. Capital Expenditures

A. Hardware – 4 ThinkPad A21p (laptop computers) with cases @ $4,075
B. Software –Radiography Pro Software @ $1,895
C. Network costs – None

4. Other Operating – None

5. **Cash Match –** As indicated in 1A. The match will be from Southeast Community College, indicating salaries paid to substitutes for instructors involved in curriculum development for the project.

6. **In-kind Match –** As indicated in 2C, SCC will provide the match and document hours spent on the project by faculty and project director.

7. **External Funding –** Hospitals have outlined their commitments to the overall project in the support letters, but this has not been included in the budget form. Only expenses pertaining to the specific activities this proposal addressed were included.